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Mental Health of Children in Palestinian Kindergartens: Resilience and Vulnerability

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Background: Exposure to adversity does not necessarily lead to the development of psychopathology in all affected children. This study examined the factors associated with resilience and vulnerability in mental health in the Gaza Strip in 2007. **Methods:** Children selected from a random sample of kindergartens (3-6 years old, $N = 350$) were assessed for growth and their mothers administered an interview including a psychometric test battery. **Results:** Factors associated with resilience were maternal rated good health, higher maternal level of education, and less child exposure to traumatic events. Factors associated with vulnerability were poor maternal mental health, and male gender. **Conclusions:** Our findings highlight the importance of maternal health and education in affecting children's mental health.

Key Practitioner Message:

- Exposure to violence in young Palestinian children in the Gaza Strip appears to be associated with mothers' mental health, which in turn predicts children's resilience and vulnerability
- Children exposed to violence and deprivation may benefit substantially from immediate psychosocial interventions targeting maternal mental health as well as child health
- It is important to educate and support parents, teachers, and other caregivers so they can support the emotional well-being of these children
- Special attention should be given to children living on the Palestinian borders, where there is constant threat and ongoing trauma
- Preventing dropouts from school by encouraging girls to finish high school may be an important public health intervention, not only for their own well-being but also to promote resilience in their future children

Keywords: Preschoolers; resilience; vulnerability; mental health; political violence

Introduction

In September 2000, political violence resulted in the imposition of restrictions on the movement of Palestinian goods and people across borders and within the Palestinian Territory. These restrictions seriously compromised household welfare, which resulted in loss of income, decreased quantity and quality of food, and impeded access to health care (PCBS, 2002). Since this time, poverty has risen dramatically, with more than 75% of the Palestinians currently living below the poverty line (less than $2/person/day) (PCBS, 2006). In 2003, Qouta assessed mental health problems of 121 Palestinian children (6-16 years) and found that 54% of the children suffered from severe levels of post traumatic stress disorder (PTSD) (Qouta, Punamaki, & El Sarraj, 2003), an anxiety disorder that develops as a result of exposure to a terrifying event or ordeal (Helene, 2001).

Child witnesses of violence display increased incidence of internalising behaviours, such as depression, and externalising behaviours, such as aggressiveness and noncompliance (Lieberman, Van Horn, & Ozer, 2005). The reactions to being exposed to violence intensify with increasing level of violence (Engle et al., 2007; Engle, Castle, & Menon, 1996; Thabet, Karim, & Vostanis, 2006; Thabet, Abed, & Vostanis, 2001). In 2003, Thabet looked at the behavioural and emotional problems of 309 Palestinian preschoolers and found that direct and indirect exposure to war trauma increases the risk of poor mental health (Thabet et al., 2006).

Current knowledge about children's responses to wartime trauma is mostly based on PTSD research (Helene, 2001). However, PTSD is only one aspect of a complex set of responses (Helene, 2001). Exposure to adversity or trauma does not necessarily lead to impairment and the development of psychopathology

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in all exposed children (Yehuda et al., 2006). Some are resilient in the face of stressful life events and appear to develop healthy psychosocial functioning (Conrad, 1998; Crooks, 1997; Dybdahl, 2001; Horning, 2002; Lieberman et al., 2005; Luster, Fitzgerald, & Vandenbelt, 2000; Tschann et al., 1996). Resilience, the opposite of vulnerability, is defined as the individual's ability to resist the potential negative consequences of the risk and develop adequately (Engle et al., 1996). The focus on resilience is based on the theory that the mechanisms operating to produce resilience and vulnerability are different (Engle et al., 1996; Garmezy, 1993; Lapping et al., 2002; Luster et al., 2000; Luthar, Sawyer, & Brown, 2006; Masten, 2001; Punamaki, Qouta, & El Sarraj, 2001; Ryff & Singer, 2003, Luthar, Cicchetti, & Becker, 2000; Tschann et al., 1996; Zeitlin, 1991).

Most previous studies have examined the impact of exposure to violent events as the only stressor affecting the mental health of children in war situations (Eapen et al., 2001; Helene, 2001; Thabet et al., 2006; Thabet, Abed, & Vostanis, 2002; Thabet & Vostanis, 1999; Zakrison et al., 2004). It is equally important to examine additional and often ignored stressors such as deprivation (a situation that is unacceptably below some minimum standards (Townsend, 1987)) and forced relocation (Caffo & Belaise, 2003; Srour, 2006). A study among 296 school children in Sri Lanka highlighted the detrimental effects of cumulative stress on children's mental health (Catani et al., 2008). Far less studied has been the influence of maternal mental health on child distress (Smith et al., 2001). There is evidence of a high correlation between mothers' and children's distress in a war situation (Murthy & Lakshminarayana, 2006). Studies conducted in the United States, India, and South Africa have found higher levels of behavioural problems in young children of depressed mothers (NICHD, 1999; Walker et al., 2007). Depressed mothers have been found to be less involved, less sensitive, and more negative when interacting with their infants and young children (NICHD, 1999; Walker et al., 2007).

As to child demographics, there is currently no widespread agreement that certain groups are at greater risk for mental health problems than others on the basis of either age or gender (Baker, 1999; Helene, 2001; Lieberman et al., 2005; Tschann et al., 1996). Low birth weight children are more likely to have increased frequency of behavioural problems than normal birth weight peers (Fuchs et al., 2004; Mamiro et al., 2005; Savva et al., 2005; Sommerfelt, Markestad, & Ellertsen, 1998).

Few studies have examined the association between stunting and children's mental health, particularly among those exposed to political violence. Previous studies found that malnourished children are at increased risk of developing behavioural problems (Melaku & Lulseged, 1999; Nicolas-Puel et al., 2006).

Many previous studies on the effects of war have examined older children (Murthy & Lakshminarayana, 2006; Tschann et al., 1996). However, there is evidence that younger children facing military violence are more vulnerable to subsequent poor adjustment than older children (Punamaki et al., 2001; Qouta et al., 2003). Children with behaviour problems as preschoolers are at an increased risk of psychiatric disorders as adolescents (Loeber, 1982).

The identification of factors that may either protect children from adverse effects of violence and deprivation, or exacerbate these effects, is crucial for both the theoretical understanding of child development and for the design of effective intervention strategies (Lieberman et al., 2005). To our knowledge, no research has empirically tested the extent to which maternal mental health accounts for the association between adverse conditions (political violence and deprivation) and child mental health. The present study extended the limited literature on the impact of war and deprivation on children's mental health, to understand the interplay between maternal and child mental health under conditions of threats to life and violence. This research focused on variables that can be modified to improve child mental health outcomes before major policy and structural changes (such as alleviating poverty and the end of political violence). We postulated that poor maternal mental health, deprivation, and exposures to violence are associated with vulnerability, while good maternal education and self-rated health are associated with resilience in child mental health.

Method

Description of target population and sampling design

We conducted a cross-sectional kindergarten-based survey of children 3-6 years old in the Gaza Strip, the region most adversely affected by political conflict and deprivation in the Palestinian Territory. We identified kindergartens from a list of 964 in the Gaza Strip provided by the Palestinian Ministry of Education. We stratified the list by localities (a permanently inhabited place, with an independent municipal administration (Statistics, 2006b)), and then by type of administration (public, private, and United Nations Relief and Works Agency for Palestine Refugees in the Near East [UNRWA]). Because of their large population, two kindergartens were randomly selected in each of the two most populated areas (Gaza city and Deir Al-Balah); in each of the remaining six localities (for a total of 8), one kindergarten was chosen in each. Although the kindergartens are licensed for children 4 to 5 years, there were some 3 and 6 year olds in the selected kindergartens. All preschoolers 3-6 years old who were listed in the registration books of the 10 kindergartens were selected for the study, except when there were multiple children from the same family, in which case only one child was randomly selected. The study survey consisted of both questionnaire and an anthropometric component (height). Except for the General Health Questionnaire inventory, Strength and Difficulties Questionnaire (SDQ), and the Gaza Traumatic Event Checklist that were already available in Arabic, we translated the study questionnaire into Arabic. The study lead investigator (SM) translated the study questionnaire, and the study field manager reviewed it and proof read it to determine whether the translations (instructions, items, and response choices) were acceptable, whether they were understood in the way they were intended, and whether the language used was

simple and appropriate. The questionnaire was then pilot tested among mothers of 35 preschoolers in the Gaza Strip, the language revised when necessary to make it clearer, and administered to the study sample following written guidelines. The Human Subjects Office, Social and Behavioural Science IRB, University of Wisconsin-Madison, approved the study protocol in December 2006.

Recruitment

The field manager called parents based on registration books, briefed them about the study, and invited the mothers to come to the kindergartens to participate. Verbal informed consent was obtained from the mothers following a description of the study; mothers were given the option to skip any question they did not feel comfortable answering, and to temporarily or permanently stop the interview. Mothers were interviewed in their children's kindergartens. One of the study instruments was also administered to the children's teachers. The response rate among both mothers and teachers was 100%. This high response rate was expected and is in line with the experience of a previous cross-sectional survey and Palestinian Demographic Health Surveys all of which had response rates ranging from 95.5-98.3% (PCBS, 2004; Statistics, 2000, 2002, 2007; Thabet et al., 2006).

Mental health assessment

The main outcomes of interest were resilience and vulnerability in mental health. Child mental health status was measured by the total difficulties score using the Strength and Difficulties Questionnaire (SDQ), a standard research tool that measures behaviour problems, emotional symptoms, hyperactivity/inattention, peer relationship problems, and prosocial behaviour (Goodman et al., 2003). A score is estimated for each scale (range 0-10) and a total difficulties score for the four scales, excluding prosocial behaviour range (0-40). The SDQ was developed in a sample of English children and has been used in many large epidemiological studies in the United Kingdom (e.g. the British nationwide survey of child mental health and the Avon longitudinal study) and throughout the world (Goodman et al., 2003), including Palestine. Thabet et al. examined the mental health of 332 children in Gaza between the ages of 3-16 years, and found that SDQ identified children with poor mental health (Thabet, Stretch, & Vostanis, 2000). In a previous study, the Cronbach's alpha for SDQ was 0.73 and the test-retest coefficient after 4-6 months was 0.62 (Goodman, 2001), while in our study alpha was 0.98.

In the present study, the SDQ was administered to both the child's mother and teacher and the average score from both sources was used to characterise each child's mental health as previously recommended (Kraemer, 2003). Also based on previous recommendations (Goodman, 2001), we defined resilience in mental health (in the normal range) as a total score on SDQ≤13; borderline cases as total scores between 13 and 17; vulnerability (poor mental health) was defined as total scores on the SDQ≥17. Emotional problems were defined as total score ≥5, conduct problems as total scores ≥4, hyperactivity as total score ≥7, and peer relationship problems as total score ≥4 (Goodman, 2001). The correlation coefficient between parents' and teachers' reports was low, but statistically significant ($r = 0.32$, $p < .001$). This low correlation between maternal and teacher reports of child mental health is typical in interrater studies of children's mental health (Briggs-Gowan, Carter, & Schwab-Stone, 1996; Kim-Cohen et al., 2004; Thabet et al., 2000). In general, maternal scores were higher than teachers' scores (mean ±SE mean) (14.8 ± 0.27 vs 12.9 ± 0.24, respectively).

Explanatory variables

The main explanatory variables were child exposure to violence, stunting, and gender; and household factors: deprivation, social support (based on the Social Provision Scale (Cutrona & Russell, 1987)), size of the household, maternal health, and education. Child age was controlled for in all analyses.

Variable definitions

Exposure to violence: this summary measure was obtained from the number of exposures to traumatic events in the past year based on the 19-item-Gaza Traumatic Event Checklist (Thabet et al., 2006). The checklist was developed by the research department of the Gaza Community Mental Health Programme covering different types of traumatic events to which the child might have been exposed. It was examined both as a summary measure and as individual exposures for each of its components. The reliability coefficient of the Gaza Traumatic Event Checklist was 0.72 (Thabet & Vostanis, 1999).

Confrontation level: Measured by asking the mothers if their dwellings lie in direct military confrontation areas (Yes/No).

Stunting: Defined as low height-for-age (*Z* score<-2) and reflects chronic malnutrition (WHO, 1995).

Deprivation: Coded as a binary (Yes/No) variable based on the reporting of at least one or none of the following forms of deprivation: 'family did not have enough money for living expenses'; 'did not have money to pay the bills'; or 'the mother felt that her child was deprived' (Crooks, 1997; Townsend, 1987).

Social support: A rating was based on summing the answers (Yes = 1, No = 0) to the following items in the Social Provision Scale (Cutrona & Russell, 1987): 'mother has someone to count on for help'; 'has friends and family to make her happy and secure'; 'has somebody to trust to talk about problems'; and 'has someone with whom she feels intimacy' (Crooks, 1997). The Cronbach's alpha of the social support scale in our sample was 0.75.

Maternal mental health: A rating was based on responses to the General Health Questionnaire (GHQ-28), which is a self-administered instrument designed to detect current diagnosable psychiatric disorder (Dowell, 2006). It covers severe depression and suicidal risk, anxiety and insomnia, social dysfunction, and somatic symptoms (Dowell, 2006). It is designed to identify two main problems: inability to carry out one's normal 'healthy' functions, and the appearance of new

phenomena of a distressing nature (Kent et al., 1999). GHQ-28 scores greater than 4 are considered to indicate possible psychiatric 'cases' (Kent et al., 1999). In our sample, the Cronbach's alpha for GHQ-28 was 0.87, in line with a previous study that reported a Cronbach's alpha of 0.91 (Dowell, 2006). In a validation study of GHQ-28, as determined by comparison with the Composite International Diagnostic Interview (CIDI) in 15 countries, the sensitivity was 79.7% and specificity of 79.2% (Dowell, 2006).

Maternal self-rated health: We measured health perceptions through the question, 'At the present time, would you say your health is excellent, very good, good, fair, or poor?' We coded this variable into a binary variable: fair or poor versus good/very good/or excellent.

Maternal education: We measured maternal education status: elementary or below (6 years of schooling or less), preparatory (9 years of schooling), secondary (12 years of schooling), intermediate college (Diploma), University, High Diploma, and Masters degree/PhD. The normal age of entry in elementary school for Palestinians is 6 years and the average length of formal schooling is about 10 years (Statistics, 2007). We coded this variable into a binary variable: elementary or below vs. above elementary education.

Data analyses

The data set was comprised of 350 subjects and was analysed with SPSS 14.0 (Statistical Package for the Social Sciences). In addition to estimating the overall prevalence of resilience and vulnerability in child mental health, we calculated the prevalence by locality and by children's age. We used mean values, standard deviations, and percentages to characterise the sample. We used Pearson correlation to examine the correlation between the mother-report and the teacher-report of SDQ scores.

We used binary logistic regression to examine factors associated with resilience and vulnerability, using the borderline group as a referent group. In support of the theory that resilience and vulnerability may have different predictors (Engle et al., 1996; Garmezy, 1993; Lapping et al., 2002; Luster et al., 2000; Luthar et al., 2006; Masten, 2001; Punamaki et al., 2001; Ryff & Singer, 2003, Luthar et al., 2000; Tschann et al., 1996; Zeitlin, 1991), the parallel lines test based on ordinal regression (SPSS, 2002) in our data suggested that mental health does not have the same determinants across its range (chi square 11.3, $df = 5$, $p = .046$). The baseline and final models included all variables with $p < 0.1$. Finally, we examined the interaction effects between maternal health and exposures to violence, and child age and gender and exposures to violence. Binary logistic regression models were also used to examine factors associated with poor maternal mental health and maternal self-rated health as fair or poor. All tests of significance were two-sided.

Results

Of the children studied, the mean child age was 59 months, and 49% were girls (Table 1). About one-quarter of the study sample lived in direct military confrontation areas, where children have experienced a mean number of 6 traumatic events. The overall prevalence of resilience and vulnerability in child mental health was 36% and 29%, respectively. Average maternal age was 31 years and their average length of schooling was 10 years (similar to the national average); about 7% of the mothers were employed and almost 60% had poor mental health. The average household size was 8, and about half the study sample was on food assistance.

The most vulnerable were children 4 and 5 years old (Table 2). Almost 50% of children 3-5 years old had conduct problems, while hyperactivity was mostly

Table 1. Characteristics of the study sample ($N = 350$), Gaza, 2007

	% (unless otherwise indicated)
Child factors	
Age in months - mean (*SD*)	59 (8)
Females	49
Low birth weight (<2.5 kg)	7
Stunting[1]	15
Number of exposures to violence - mean (*SD*)	6 (3)
Children with resilience in mental health	36
Children with vulnerability in mental health	29
- Conduct problems	52
- Emotional problems	19
- Peer relationship problems	17
- Hyperactivity	3
Household factors	
Maternal age - mean (*SD*)	31 (6)
Maternal elementary schooling only (6 years of schooling)	10
Maternal self-rated health as fair or poor	32
Poor maternal mental health[2]	60
Reported any form of social support[3]	38
Living in a direct military confrontation area	25
Family moved in the past 2 years	19
On regular food assistance	51
Shortage of money for living expenses	12
Shortage of money for paying bills	18
Mother felt her child was deprived	16
Reported any form of deprivation[4]	23
Average household income[5] - mean (*SD*)	205 (174)
Family size - mean (*SD*)	8 (4)

[1]Stunting: Height-for-age < 2 *SD* from the population mean
[2]Total score on General Health Questionnaire ≥5
[3]The mother had someone to trust, to count on for help, had someone with whom she feels intimacy, or had family and friends that make her happy and secure.
[4]Family did not have money for living expenses, did not have money to pay the bills, or mother felt her child is deprived.
[5]In US dollars. The estimate was based on 120 households.

Table 2. Prevalence of emotional and behavioural problems by age, Gaza, 2007

Child age (years)	Number	Peer relationships problem (%)	Conduct problems (%)	Emotional problems (%)	Hyperactivity problems (%)
3	16	6.3	56.3	12.5	6.3
4	159	17.6	56.0	16.4	1.3
5	159	18.9	49.1	21.4	5.0
6	16	0.0	31.3	18.8	0.0

reported among the 3 year old children (Table 2). In analyses stratified by locality, there was significant variability in the prevalence of mental health resilience (range 14-53%) and mental health vulnerability (22-69%) (both $p < .0005$). Almost half of the children and the majority of the mothers from Beit-Hanoun City had poor mental health (49% and 89%, respectively), and only 17% of the children were resilient (data not shown).

The most prevalent children's exposures to traumatic events were hearing the sonic sound of jetfighters, watching mutilated bodies on television, and hearing shelling on houses (Table 3). About 23% of households reported at least one form of deprivation.

Factors associated with resilience in child mental health

Maternal self-rated health as good/very good/or excellent (OR = 2.73, 95% CI: 1.50, 4.95), maternal education above 6th grade level (OR = 2.96, 95% CI: 1.08, 8.14), and less child exposure to traumatic events were all associated with resilience in child mental health (Table 4). Child age and gender were not significantly associated with resilience. None of the interactions with exposures to traumatic events (child age and gender, and maternal self-rated health) were significant.

Factors associated with vulnerability in child mental health

Factors associated with vulnerability were poor maternal mental health (OR = 2.05, 95% CI: 1.12, 3.75), and the child gender (being a boy) (OR = 1.89, 95% CI: 1.09, 3.27). Child age, exposures to traumatic events, and maternal education were not associated with vulnerability. None of the interactions with exposures to traumatic events (child age and gender, and maternal mental health) were statistically significant (Table 4)

Table 3. Frequency of exposure to traumatic events, Gaza, 2007*

Experience	%
Heard sonic sounds of jetfighters	94
Watched mutilated bodies or injured on TV	93
Heard shelling by artillery	84
Witnessed signs of shelling on ground	50
Witnessed bombardment at houses	42
Witnessed assignation of people by rockets	28
Deprived of food, water and electricity during incursion	25
Witnessed firing on houses	24
Detained in one's house during incursion	23
Heard of killing of a close relative	23
Heard of a killing of a friend	16
Witnessed firing on one's own house	13
Prevented from using toilet and getting out of room during incursion	12
Destruction and stealing of personal things by soldiers	7
Exposed to firing in an attempt to scare	6
Injured due to bombardment of one's own house	5
Was beaten during incursion	5
Threatened killing one of family members during incursion	4
Used as a barrier in the process or arresting a neighbour	2

*Based on the Gaza Traumatic Event Checklist (Thabet et al., 2006)

Factors associated with poor maternal mental health and maternal self-rated health as fair or poor

Factors associated with poor maternal mental health were deprivation (OR = 1.29, 95% CI: 1.07, 1.57), larger size of the household (OR = 1.12, 95% CI: 1.05, 1.20), and living in a direct military confrontation area (OR = 2.90, 95% CI: 1.60, 5.25). Factors associated with maternal self-rated health as fair or poor were increased child's exposure to traumatic events (OR = 1.08, 95% CI: 1.01, 1.16), inadequate social support (OR = 0.72, 95% CI: 0.62, 0.96), deprivation (OR = 1.42, 95% CI: 1.17, 1.72), and larger size of the household (OR = 1.07, 95% CI: 1.01, 1.13) (Table 5).

Discussion

In line with earlier findings suggesting that some children demonstrate resilience despite adversity (Caffo & Belaise, 2003; Engle et al., 1996; Garmezy, 1993; Kim-Cohen et al., 2004; Luster et al., 2000; Ryff and Singer, 2003; Tschann et al., 1996), about one-third of the children in our study sample met our definition of resilience in mental health. The notable exception were the study participants in Beit-Hanoun City, where half of the children and the majority of the mothers had poor mental health, and only one-sixth of the children were resilient; this may be explained by the particularly high conflict/confrontation level in this town, being only a few hundred metres from the Palestinian–Israeli border (UNRWA, 2006).

In the present study, children's deprivation and exposure to violence was not associated with the children's mental health, but was strongly associated with mothers' mental health. The lack of association between exposure to violence and child's mental health, although somewhat counterintuitive, is consistent with results from a previous study in Gaza among 420 children 6-18 years (Thabet et al., 2007). One possible explanation for this finding might be the limited variability of the exposure. The majority of these children were born and raised under political violence, more than 75% of Palestinians in the Gaza Strip live below poverty line, and 51% of our study sample received food assistance. If practically all the study subjects have some degree of exposure to these adversities, this limits the power to detect an association with children's health.

Compared to the child's own mental health, maternal mental health might be a more sensitive marker of the consequences of exposure to violence and thus were the associations we found, which are consistent with results from a previous study in Bosnia (Smith et al., 2001).

Poor maternal mental health, in turn, seems to contribute to children's vulnerability, which is in line with our previous study showing that poor maternal mental health was associated with stunting (Massad et al., 2008 unpublished). These results also concur with earlier research emphasizing the importance of maternal mental health for children's well-being in traumatic conditions (Al Arjani, Thabet, & Vostanis, 2008; Laor et al., 1997; Qouta, Punamaki, & El Sarraj, 2005; Thabet et al., 2001). A study conducted in 2001 in the Gaza Strip among children 6-11 years old found that

Table 4. Factors associated with resilience and vulnerability in child mental health, Gaza, 2007

	Resilience health		Vulnerability	
Risk factor	Odds Ratio	95% Confidence Interval	Odds Ratio	95% Confidence Interval
Maternal self-rated health as good/ very good/or excellent (Yes/No)	2.73	1.50, 4.95*		
Maternal education above 6th grade level (Yes/No)	2.96	1.08, 8.14*	1.41	0.62, 3.24
Number of child's exposures to traumatic events	0.91	0.83, 0.99*	1.002	0.92, 1.09
Child age (years)			1.18	0.76, 1.82
Child gender (male)			1.89	1.09, 3.27*
Poor maternal mental health (Yes/No)			2.05	1.12, 3.75*

* $p < .05$

Table 5. Factors associated with maternal mental health and self-rated health, Gaza, 2007

	Poor maternal mental health		Maternal self-rated health as fair or poor	
Risk factor	Odds Ratio	95% Confidence Interval	Odds Ratio	95% Confidence Interval
Living in a direct military confrontation area (Yes/No)	2.90	1.60, 5.25*		
Deprivation (total score)	1.29	1.07, 1.57*	1.42	1.17, 1.72*
Size of household (per one person increment)	1.12	1.05, 1.20*	1.07	1.007, 1.13*
Social support (total score)			0.77	0.62, 0.96*
Number of child's exposures to traumatic events			1.08	1.005, 1.16*

*$p < .05$

the children's emotional presentations were strongly correlated with maternal psychopathology, namely the mothers' response to trauma (Thabet et al., 2001). These finding are also in line with a previous study in Israel (Laor, Wolmer, & Cohen, 2001).

Overall, these results support the notion that the stress of a trauma on a parent may be a more important link with child well-being than the experience of the trauma by the child him or herself (Laor et al., 2001). In other words, maternal mental health may buffer the impact of adversity on small children; their functioning might be a powerful risk factor for the children's well-being. The corollary of this hypothesis is that symptomatic mothers, especially mothers of younger children, should be identified and helped, not only for their own sake, but also in order to alleviate the possible effects of trauma in young children exposed to political violence.

This study adds to the evidence that social support has a significant role in promoting maternal psychosocial well-being in war-affected regions (Murthy & Lakshminarayana, 2006). Social support in this context may be instrumental, providing esteem, status, motivation, information, companionship, emotional empathy, and understanding (Zeitlin, 1990).

Although this study adds to the trauma literature, it has several limitations. First, this is a cross-sectional study so we cannot examine causality. Second, this study provides a snapshot of children's mental health during political violence and ongoing war, and cannot address issues related to children's pre-war status. Third, reliance on maternal reports for several of the major variables is a potential limitation. The prevalence of resilience and vulnerability of child mental health and maternal depression were based on reports made by the mothers rather than on psychiatric interviews. The extent to which the characterisation of the child's mental health in our study reflects the relationship between the mother's mental health and her perception of the child's well-being, rather than the actual situation of the child, is not known. In order to address this limitation, we also used teachers' reports in combination with mothers' reports and we accounted for maternal mental health in our study. Fourth, we did not account for domestic violence. Although it has been documented in previous national surveys among children 5-7 years (Statistics, 2006a), we opted not to measure it as we did not want it to affect participation rate, since it was not our main study aim. Fifth, we did not account for quality of mother-child interaction, whether it was sensitive, responsive, and consistent, which would be one of the factors associated with resilience (NICHD, 1999).

This study is unique in several aspects. First, it examined both vulnerability and resilience of children attending kindergartens in general in the Gaza Strip, and of those exposed to a range of political violence and deprivation in particular. Second, it assessed the effect of several risk factors simultaneously, which is important in identifying the combinations of factors that increase vulnerability of children. Third, it directly examined the role of maternal self-reported physical and mental health in studying children's mental health. Fourth, the study context provided a unique opportunity to examine the impact of both chronic and acute exposure to political violence on children's mental health.

Our findings have public health and clinical implications because they highlight the importance of maternal physical and mental health as an important contributing factor in affecting children's vulnerability; therefore, helping mothers directly may effectively reduce suffering of both mothers and children. There is a need for immediate psychosocial interventions targeting maternal mental health as well as child health, to help mothers with their own psychological problems as well as those of their children, and to facilitate high quality mother-child interactions in the context of political violence. We need to educate and support parents, teachers, and other caregivers so they can support the emotional well-being of children exposed to political violence and deprivation. Such interventions may consist of semi-structured group discussion meetings for mothers to support them and increase their sense of well-being, self-confidence, and ability to care for their children in this difficult situation, and to be their children's best healer (Dybdahl, 2001). Another important public health intervention might be to focus on preventing dropouts from school by encouraging girls to finish high school, both for their own well-being as well as to promote resilience in their future children. Finally, special attention should be given to those living near the border in zones of conflict, where there is constant threat and ongoing trauma and where the majority of children and mothers with poor mental health found in this study are concentrated.

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References

Al Arjani, S.E., Thabet, A.A., & Vostanis, P. (2008). Coping strategies of traumatized children lost their father in the current conflict. *Arabpsynet e. Journal: N°* 18&19– Spring & Summer, 226–237.

Baker, A. (1999). Effects of political and military traumas on children: The Palestinian case. *Clinical Psychology Review*, *19*, 935–950.

Briggs-Gowan, M.J., Carter, A.S., & Schwab-Stone, M. (1996). Discrepancies among mother, child, and teacher reports: Examining the contributions of maternal depression and anxiety. *Journal of Abnormal Child Psychology*, *24*, 749–765.

Caffo, E., & Belaise, C. (2003). Psychological aspects of traumatic injury in children and adolescents. *Child and Adolescent Psychiatric Clinics of North America*, *12*, 493–535.

Catani, C., Jacob, N., Schauer, E., Kohila, M., & Neuner, K. (2008). Family violence, war, and natural disasters: A study of the effect of extreme stress on children's mental health in Sri Lanka. *BMC Psychiatry*, *8*, 33.

Conrad, B.S. (1998). Maternal depressive symptoms and homeless children's mental health: Risk and resiliency. *Archives of Psychiatric Nursing*, *12*, 50–58.

Crooks, C. (1997). Predicting positive outcomes in junior kindergarten children at risk for behavior problems: Gender differences in the pathways to resilience. *Arts*, 114. Kingstone: Queen's University.

Cutrona, C., & Russell, D.W. (1987). The provision of social relationships and adaptation to stress. *Advances in Personal Relationships*, *1*, 37–67.

Dowell, I.M. (2006). *Measuring health: A guide to rating scales and questionnaires* (3rd Ed.) New York: Oxford University Press.

Dybdahl, R. (2001). Children and mothers in war: An outcome study of a psychosocial intervention program. *Child Development*, *72*, 1214–1230.

Eapen, V., Swadi, H., Sabri, S., & Abou-Saleh, M. (2001). Childhood behavioural disturbance in a community sample in Al-Ain, United Arab Emirates. *Eastern Mediterranean Health Journal*, *7*, 428–434.

Engle, P.L., Castle, S., & Menon, P. (1996). Child development: Vulnerability and resilience. *Social Science and Medicine*, *43*, 621–635.

Engle, P.L., Black, M.M., Behrman, J.R., Cabral de Mello, M., Gertler, P.J., Kapiriri, L., Martorell, R., & Young, M.E. (2007). Strategies to avoid the loss of developmental potential in more than 200 million children in the developing world: International Child Development Steering Group. *Lancet*, *369*, 229–242.

Fuchs, G., Ahmed, T., Araya, M., Baker, S., Croft, N., & Weaver, L. (2004). Malnutrition: Working Group report of the second World Congress of Pediatric Gastroenterology, Hepatology, and Nutrition. *Journal of Pediatric Gastroenterology and Nutrition*, *39*, Suppl 2, S670–677.

Garmezy, N. (1993). Children in poverty: Resilience despite risk. *Psychiatry*, *56*, 127–136.

Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*, 1337–1345.

Goodman, R., Ford, T., Simmons, H., Gatward, R., & Meltzer, H. (2003). Using the Strengths and Difficulties Questionnaire (SDQ) to screen for child psychiatric disorders in a community sample. *International Review of Psychiatry*, *15*, 166–172.

Helene, B. (2001). Children and war: Current understandings and future directions. *Public Health Nursing*, *18*, 243–252.

Horning, L. (2002). Resilience in preschoolers and toddlers from low-income families. *Early Childhood Education Journal*, *29*, 155–159.

Kent, G.N., Stuckey, B.G., Allen, J.R., Lambert, T., & Gee, V. (1999). Postpartum thyroid dysfunction: Clinical assessment and relationship to psychiatric affective morbidity. *Clinical Endocrinology*, *51*, 429–438.

Kim-Cohen, J., Moffitt, T.E., Caspi, A., & Taylor, A. (2004). Genetic and environmental processes in young children's resilience and vulnerability to socioeconomic deprivation. *Child Development*, *75*, 651–668.

Kraemer, H.C., Measelle, J.R., Ablow, J.C., Essex, M.J., Boyce, W.T., & Kupfer, D.J. (2003). A new approach to integrating data from multiple informants in psychiatric assessment and research: Mixing and matching contexts and perspectives. *American Journal of Psychiatry*, *160*, 1566–1577.

Laor, N., Wolmer, L., & Cohen, D.J. (2001). Mothers' functioning and children's symptoms 5 years after a SCUD missile attack. *American Journal of Psychiatry*, *158*, 1020–1026.

Laor, N., Wolmer, L., Mayes, L.C., Gershon, A., Weizman, R., & Cohen, D.J. (1997). Israeli preschool children under Scuds: A 30-month follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry*, *36*, 349–356.

Lapping, K., Marsh, D.R., Rosenbaum, J., Swedberg, E., Sternin, J., Sternin, M., & Schroeder, D.G. (2002). The positive deviance approach: Challenges and opportunities for the future. *Food and Nutrition Bulletin*, *23*, 130–137.

Lieberman, A.F., Van Horn, P., & Ozer, E.J. (2005). Preschooler witnesses of marital violence: Predictors and mediators of child behavior problems. *Development Psychopathology*, *17*, 385–396.

Loeber, R. (1982). The stability of antisocial and delinquent child behavior: A review. *Child Development*, *53*, 1431–1446.

Luster, T., Fitzgerald, H., & Vandenbelt, M. (2000). Factors related to successful outcomes among preschool children born to low-income adolescent mothers. *Journal of Marriage and the Family*, *62*, 133–146.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, *71*, 543–562.

Luthar, S.S., Sawyer, J.A., & Brown, P.J. (2006). Conceptual issues in studies of resilience. *Annals of the New York Academy of Sciences*, *1094*, 105–115.

Mamiro, P.S., Kolsteren, P., Roberfroid, D., Tatala, S., Opsomer, A.S., & Van Camp, J.H. (2005). Feeding practices and factors contributing to wasting, stunting, and iron-deficiency anaemia among 3-23-month old children in Kilosa district, rural Tanzania. *Journal of Health, Population, and Nutrition*, *23*, 222–230.

Masten, A.S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, *56*, 227–238.

Melaku, A., & Lulseged, S. (1999). Chronic suppurative otitis media in a children's hospital in Addis Ababa, Ethiopia. *Ethiopian Medical Journal*, *37*, 237–246.

Murthy, R.S., & Lakshminarayana, R. (2006). Mental health consequences of war: A brief review of research findings. *World Psychiatry*, *5*, 25–30.

NICHD Early Child Care Research Network. (1999). Chronicity of maternal depressive symptoms, maternal sensitivity, and child functioning at 36 months. *Developmental Psychology*, *35*, 1297–1310.

Nicolas-Puel, C., Akbaraly, T., Lloyd, R., Berr, C., Uziel, A., Rebillard, G., & Puel, J.L. (2006). Characteristics of tinnitus in a population of 555 patients: Specificities of tinnitus induced by noise trauma. *International Tinnitus Journal*, *12*, 64–70.

PCBS (2002). *Child health in the Palestinian territory*. Ramallah: Palestinian Central Bureau of Statistics.

PCBS (2004). Demographic and Health Survey 2004. In *Press Release*. Ramallah: Palestinian Central Bureau of Statistics.

PCBS (2006). *Annual report on the Palestinian population in the international population day*. 11 July.

Punamaki, R.L., Qouta, S., & El Sarraj, E. (2001). Resiliency factors predicting psychological adjustment after political violence among Palestinian children. *International Journal of Behavioral Development*, *25*, 256–267.

Qouta, S., Punamaki, R.L., & El Sarraj, E. (2003). Prevalence and determinants of PTSD among Palestinian children exposed to military violence. *European Child and Adolescent Psychiatry*, *12*, 265–272.

Qouta, S., Punamaki, R.L., & El Sarraj, E. (2005). Mother-child expression of psychological distress in war trauma. *Clinical Child Psychology and Psychiatry*, *10*, 135–156.

Ryff, C., & Singer, B.H. (2003). Flourishing under fire: Resilience as a prototype of challenged thriving. In H. J. Keyes (ed.), *Flourishing: Positive psychology and the life well-lived* (pp. 15–36). Washington: American Psychological Association.

Savva, S.C., Tornaritis, M., Chadjigeorgiou, C., Kourides, Y.A., Savva, M.E., Panagi, A., Chrictodoulou, E., & Kafatos, A. (2005). Prevalence and socio-demographic associations of undernutrition and obesity among preschool children in Cyprus. *European Journal of Clinical Nutrition*, *59*, 1259–1265.

Smith, P., Perrin, S., Yule, W., & Rabe-Hesketh, S. (2001). War exposure and maternal reactions in the psychological adjustment of children from Bosnia-Hercegovina. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *42*, 395–404.

Sommerfelt, K., Markestad, T., & Ellertsen, B. (1998). Neuropsychological performance in low birth weight preschoolers: A population-based, controlled study. *European Journal of Pediatrics*, *157*, 53–58.

SPSS (2002). *Ordinal Regression Analysis, SPSS Advanced Models 10.0*. Chicago, IL.

Srour, R. (2006). Communal and familial war-related stress factors: The case of the Palestinian child. *Journal of Loss and Trauma*, *11*, 289–309.

Statistics (2000). *Health survey-2000: User*'s guide (pp. 1–14). Ramallah: Palestinian Central Bureau of Statistics.

Statistics (2002). *Nutrition survey-2002: User*'s guide (pp. 1–16). Ramallah: Palestinian Central Bureau of Statistics.

Statistics (2006a). *Domestic violence survey (December 2005-January 2006): Main findings report. Summary of findings*. Ramallah: Palestinian National Authority.

Statistics (2006b). *Guidebook of statistical definitions and glossary*. Ramallah: Palestinian Central Bureau of Statistics.

Statistics (2007). *Palestinian family health survey, 2006: Preliminary report* (pp. 1–60). Ramallah: Palestinian Central Bureau of Statistics.

Thabet, A.A., Abed, Y., & Vostanis, P. (2001). Effect of trauma on the mental health of Palestinian children and mothers in the Gaza Strip. *Eastern Mediterranean Health Journal*, *7*, 413–421.

Thabet, A.A., Abed, Y., & Vostanis, P. (2002). Emotional problems in Palestinian children living in a war zone: A cross-sectional study. *Lancet*, *359*, 1801–1804.

Thabet, A.A., Abu Tawahina, A., El Sarraj, E., & Vostanis, P. (2007). Children exposed to political conflict: Implications for health policy. *Harvard Health Policy Review*, *8*, 47–57.

Thabet, A.A., Karim, K., & Vostanis, P. (2006). Trauma exposure in pre-school children in a war zone. *British Journal of Psychiatry*, *188*, 154–158.

Thabet, A.A., Stretch, D., & Vostanis, P. (2000). Child mental health problems in Arab children: Application of the Strengths and Difficulties Questionnaire. *International Journal of Social Psychiatry*, *46*, 266–280.

Thabet, A.A., & Vostanis, P. (1999). Post-traumatic stress reactions in children of war. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *40*, 385–391.

Townsend, P. (1987). Deprivation. *Social Policy*, *16*, 125–146.

Tschann, J.M., Kaiser, P., Chesney, M.A., Alkon, A., & Boyce, W.T. (1996). Resilience and vulnerability among preschool children: Family functioning, temperament, and behavior problems. *Journal of the American Academy of Child and Adolescent Psychiatry*, *35*, 184–192.

UNRWA (2006). UNRWA Commissioner-General visits Beit Hanoun in northern Gaza Strip. *Press Briefings*, 1–2.

Walker, S.P., Wachs, T.D., Meeks Gardner, B., Lozoff, G., Wasserman, E., & Pollitt, J.C. (2007). Child development: Risk factors for adverse outcomes in developing countries. *Lancet*, *369*, 145–157.

WHO (1995). Physical status: The use and interpretation of anthropometry. Report of a WHO Expert Committee. *World Health Organization Technical Report Series*, *854*, 1–452.

Yehuda, R., Flory, J.D., Southwick, S., & Charney, D.S. (2006). Developing an agenda for translational studies of resilience and vulnerability following trauma exposure. *Annals of the New York Academy of Sciences*, *1071*, 379–396.

Zakrison, T.L., Shahen, A., Mortaja, S., & Hamel, P.A. (2004). The prevalence of psychological morbidity in West Bank Palestinian children. *Canadian Journal of Psychiatry*, *49*, 60–62.

Zeitlin, M. (1990). *Positive deviance in child nutrition: With emphasis on psychosocial and behavioral aspects and implications for development*. Tokyo: United Nations University.

Zeitlin, M. (1991). Nutritional resilience in a hostile environment: Positive deviance in child nutrition. *Nutrition Reviews*, *49*, 259–268.